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ABSTRACT

The principal's role in energy conservation includes being certain that steps have been taken within the school building to effect energy savings, and using his influence to make certain that his school system applies for an Energy Retrofitting Grant under the National Energy Act if appropriate. However, the principal's greater role is to take the lead in assuring that energy conservation is taught within the school. Maple Hill High School in Castleton-on-Hudson, New York, has a course in environmental studies that has changed people's values by involving them in experiential situations. To make such a program successful requires money, supportive administration, and dedicated teachers. The widest ranging benefits will come from infusion units throughout the school system. Promoting education for energy conservation becomes more important than other responsibilities because of its obvious importance in the very survival of mankind. (Author/MLF)

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THE ROLE OF THE PRINCIPAL IN ENERGY CONSERVATION

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

THE ROLE OF THE PRINCIPAL IN ENERGY CONSERVATION CAN RANGE FROM TOTAL IGNORANCE AND LACK OF CONCERN TO A THOUGHTFUL, CONSCIOUS EFFORT AIMED AT MAKING A DIFFERENCE IN CONSERVING ENERGY NOT ONLY IN SCHOOL BUT ALSO IN SOCIETY. TODAY I'LL BE TALKING ABOUT THE LATTER ROLE, THE ROLE IN WHICH THE PRINCIPAL HAS A GENUINE CONCERN FOR ENERGY CONSERVATION, AND HAS A GENUINE INTEREST IN AFFECTING THE PEOPLE WITHIN HIS WORLD.

ON A SIMPLE, PHYSICAL LEVEL WITHIN THE SCHOOL BUILDINGS THEMSELVES, THERE CAN BE A GREAT DEAL DONE TO CONSERVE ENERGY. THE CHART ON THE OVERHEAD PROJECTOR WILL GIVE YOU AN IDEA OF THE SAVINGS WE MADE IN FUEL OIL IN OUR THREE BUILDINGS AND ONE BUS GARAGE IN NEW YORK STATE. YOU WILL NOTICE THAT WHEN THE SHORTAGE OF OIL OCCURRED IN 1973, THAT OUR CONSUMPTION OF FUEL OIL WAS APPROXIMATELY 118,000 GALLONS. YOU WILL ALSO NOTICE THAT CONSUMPTION DROPPED CONSIDERABLY DURING 1973-74 AND HAS REMAINED STABLE AT A RELATIVELY LOW CONSUMPTION RATE. DURING THAT TIME THERE WERE SOME VERY SEVERE WINTERS IN THE NORTHEAST. YOU WILL ALSO NOTICE THAT THE OPTIMUM AMOUNT OF FUEL TO BE USED IN A SCHOOL DISTRICT IS CONSIDERED TO BE ONE-HALF GALLON PER SQUARE FOOT. WE CLEARLY HAVE NOT ACHIEVED THAT GOAL YET, BUT WE ARE BELOW ONE GALLON PER SQUARE FOOT.

WE HAVE PRODUCED THESE SAVINGS IN FUEL OIL IN A NUMBER OF WAYS. FIRST AND FOREMOST, WE HAVE REDUCED THE ROOM TEMPERATURES IN THE SCHOOL BUILDINGS TO 60 DEGREES DURING THE DAY AND TO 55 DEGREES AT NIGHT, ON WEEKENDS, AND ON DAYS WHEN SCHOOL IS NOT IN SESSION. INDIVIDUAL ROOM THERMOSTATS SET FOR 60 TO 90 DEGREES HAVE BEEN REPLACED WITH THERMOSTATS WHICH RANGE FROM 40 TO 70 DEGREES. WE HAVE LOWERED THE WATER TEMPERATURE ON DOMESTIC HOT WATER FROM 145 DEGREES TO 100 DEGREES. WE HAVE INSTALLED THERMOSTATICALLY CONTROLLED VALVES ON RADIATORS HAVING MANUAL VALVES ON THEM. ALL OUTSIDE AIR DAMPERS IN UNIT VENTILATORS HAVE BEEN CLOSED. IN ADDITION, THE BOILERS IN OUR SCHOOLS RECEIVE CONSTANT MONITORING TO MAKE CERTAIN THAT ALL PARTS ARE IN GOOD WORKING ORDER. FOR INSTANCE, SOOT IS REMOVED FROM BOILERS FAR MORE OFTEN NOW THAN JUST DURING THE SUMMER SHUT DOWN. MORE ATTENTION IS GIVEN TO CLEANING AND REPLACING AIR FILTERS, AND COMBUSTION TESTS ARE RUN FAR MORE FREQUENTLY TO CHECK ON BOILER EFFICIENCY. FINALLY, ALL OF THE VENETIAN BLINDS IN THE SCHOOL ARE LOWERED AND CLOSED EACH NIGHT, ON WEEKENDS, AND ON DAYS WHEN THE SCHOOL BUILDINGS ARE NOT IN USE.

OUR USE OF ELECTRICITY, ALSO, TOOK A GREAT DECREASE AFTER THE WINTER OF 1972-73. THE DECREASE CAME ABOUT PRIMARILY BECAUSE PEOPLE TURNED OFF LIGHTS NOT IN USE. THE INCREASE WHICH WE EXPERIENCED DURING

1976-77 AND 1977-78 IS CLEARLY TIED TO THE INCREASED USE OF OUR BUILDINGS IN THE EVENING BY COMMUNITY GROUPS. THIS WAS A POLICY DECISION MADE BY OUR BOARD OF EDUCATION AND ACCOUNTS FOR THAT INCREASE IN THE USE OF ELECTRICITY. IT SHOULD BE NOTED, HOWEVER, THAT THE 616,000 KILOWATT HOURS ARE STILL WELL BELOW THE 674,000 KILOWATT HOURS WHICH WERE USED IN 1972-73 DESPITE AN INCREASED UTILIZATION OF BUILDINGS. THIS THIRD OVERHEAD PROJECTION WILL GIVE YOU SOME IDEA OF THE COMMUNICATION WHICH WE HAVE WITH MEMBERS OF OUR STAFF WHEN THE HEATING SEASON BEGINS EACH YEAR. THE COOPERATION OF OUR STAFF IN OUR SCHOOL DISTRICT HAS INSURED THESE SAVINGS IN THE CONSUMPTION OF FUEL OIL AND ELECTRICITY.

THESE SIMPLE MEASURES WHICH WE HAVE USED CAN BE TAKEN BY PRINCIPALS IN ALL HIGH SCHOOLS IN THE UNITED STATES. THESE MEASURES HAVE ALSO BEEN USED IN PRIVATE INDUSTRY. SUCH MEASURES AS SETTING THE TEMPERATURE AT A LOW 60 DEGREES, TAKING OUT DECORATIVE LIGHTING, AND INSULATING HEATING PIPES HAVE MADE BUILDINGS TEN TO FIFTEEN PERCENT MORE ENERGY EFFICIENT. BUT AS THE SPECTER OF HIGHER PRICES FOR OIL FROM THE OPEC COUNTRIES AND AS THE SPECTER OF LESS OIL FROM IRAN BECOME MORE APPARENT, MANY SPOKESMEN IN PRIVATE INDUSTRY CLAIM THAT THEY HAVE GONE ABOUT AS FAR AS THEY CAN GO WITHOUT SPENDING LARGE

SUMS OF MONEY TO IMPROVE THE ENERGY EFFICIENCY OF INDUSTRY. AS A RECENT ARTICLE IN THE WALL STREET JOURNAL (JANUARY 17, 1979) INDICATED, INDUSTRIES WHICH HAVE ALREADY MADE THEIR BUILDINGS TEN TO FIFTEEN PERCENT MORE ENERGY EFFICIENT BELIEVE THAT THEY CAN ONLY TURN OUT SO MANY LIGHTS. AS ONE COMPANY EXECUTIVE SAID, "IT'S LIKE WHIPPING A HORSE THAT IS ALREADY GALLOPING FAST." THE NEXT STEP IS TO SPEND VERY LARGE SUMS OF MONEY IN ORDER TO MAKE GREATER SAVINGS IN ENERGY.

THE INCENTIVE IN INDUSTRY FOR ENERGY CONSERVATION IS AN EASY ONE - IT'S PROFIT. COMPANIES WILL HAVE TO BALANCE THAT ADDITIONAL COST TO BRING ABOUT GREATER ENERGY SAVINGS WITH THE ADDITIONAL COST OF THE PRODUCT TO THE PUBLIC. IN EDUCATION, WE HAVE NO SIMILAR CHOICE TO MAKE; OUR ABILITY TO FINANCE EDUCATION IS BEING THREATENED MORE AND MORE EACH YEAR. IN MANY SCHOOL DISTRICTS IN THE UNITED STATES, PROGRAMS ARE BEING CUT SO THAT THE MONEY CAN BE USED TO PAY FOR THE FIXED COSTS WHICH RISE EACH YEAR AND OVER WHICH ADMINISTRATORS AND BOARDS OF EDUCATION HAVE NO CONTROL.

THE PICTURE IS INDEED A GRIM ONE, AND ONE WITH NO EASY SOLUTION. SOME HELP IS FORTHCOMING, HOWEVER, FROM THE FEDERAL GOVERNMENT IN THE FORM OF THE NATIONAL ENERGY ACT WHICH WILL PROVIDE GRANTS FOR SCHOOLS AND HOSPITALS TO UNDERTAKE PROJECTS TO MAKE THEM MORE ENERGY EFFICIENT.

THIS BILL WAS SIGNED INTO LAW ON NOVEMBER 9, 1978, AND APPLICATIONS SHOULD BE AVAILABLE RELATIVELY SOON FROM EACH STATE'S ENERGY OFFICE. PLEASE NOTE THAT THE STATE ENERGY OFFICE, AND NOT THE STATE EDUCATION DEPARTMENT WILL BE ADMINISTERING THE GRANT PROGRAM. IT IS POSSIBLE THAT SOME SCHOOLS MAY BE ABLE TO GAIN PART OF THE MATCHING FUNDS FROM THEIR OWN STATE CONSTRUCTION FUNDS. IT SHOULD ALSO BE NOTED THAT IN ORDER TO QUALIFY FOR A GRANT, A SCHOOL DISTRICT WILL HAVE TO HAVE COMPLETED A COMPREHENSIVE AUDIT CONDUCTED BY QUALIFIED ENGINEERS WITH ENERGY CONSERVATION EXPERIENCE. THE KINDS OF PROJECTS WHICH WILL RECEIVE FUNDING ARE ONES WHICH SPECIFICIALLY CALL FOR THE RETROFITTING OF BUILDINGS WHICH CAN EASILY REDUCE ENERGY CONSUMPTION. SUCH PROJECTS WOULD INCLUDE INSTALLING INSULATION, FLORESCENT LIGHTING, AND OTHER ENERGY CONSERVATION MEASURES SUCH AS REPLACING WINDOWS WITH INSULATING MATERIAL AND REPLACING CEILING TILES.

WHILE THE PRINCIPAL'S ROLE IN ENERGY CONSERVATION CONCERNING HIS BUILDING IS ONE OF SUGGESTION AND ENCOURAGEMENT TO THE STAFF AND STUDENTS TO DRESS APPROPRIATELY FOR LOWER TEMPERATURES AND TO CONSERVE ELECTRICITY AND TO TAKE ADVANTAGE OF THE NATIONAL ENERGY ACT, HIS MAJOR ROLE AND MOST EFFECTIVE ROLE, SHOULD BE ONE OF INFLUENCING THE CURRICULUM

IN HIS SCHOOL IN SUCH A WAY THAT THE STUDENTS WHO GRADUATE FROM THE SCHOOL WILL HAVE A GREATER UNDERSTANDING OF THE PROBLEMS WE FACE IN THE UNITED STATES CONCERNING ENERGY CONSUMPTION AND THE DESPERATE NEED FOR CONSERVATION.

IT IS INCUMBENT UPON THE PRINCIPAL, WHOM MANY CONSIDER THE EDUCATIONAL LEADER IN THE SCHOOL BUILDING, TO TAKE AN ACTIVE ROLE IN EFFECTING A CHANGE IN THE CURRICULUM SO THAT ENERGY EDUCATION BECOMES AN INTEGRAL PART OF THAT CURRICULUM. THE SCOPE OF THE PRINCIPAL'S ROLE BECOMES EVER MORE DIFFICULT WHEN WE REALIZE THAT IN SOME COMMUNITIES THERE IS NOT A GENERAL AGREEMENT THAT THERE IS A NEED FOR ENERGY CONSERVATION. WE ALSO KNOW THAT EFFECTING A CHANGE IN EDUCATION IS AN EXTREMELY DIFFICULT, SOMETIMES IMPOSSIBLE, TASK, AND FINALLY ATTEMPTING TO CHANGE PEOPLE'S VALUES AND ATTITUDES IS THE MOST DIFFICULT KIND OF EDUCATION TO UNDERTAKE.

IS THERE REALLY AN ENERGY CRISIS? ARTICLE AFTER ARTICLE IN THE WALL STREET JOURNAL CONTINUALLY QUESTION THE SCARCITY OF GAS AND OIL AND SUGGEST ELIMINATION OF PRICE CEILINGS SO THAT UNDISCOVERED OR UNKNOWN RESERVES CAN BE FOUND AND TAPPED. IN ADDITION, THE MAN-ON-THE-STREET TYPE OF OPINION POLLS TELL US PEOPLE DO NOT REALLY BELIEVE THERE IS A SHORTAGE OF ENERGY; THEY BELIEVE THE SHORTAGE IS CONTRIVED.

MAKING A CHANGE IN ANY TRADITIONAL CURRICULUM IS DIFFICULT ENOUGH, BUT WHAT IS EVEN MORE DIFFICULT IS TO BRING ABOUT A CHANGE IN THE VALUES OF PEOPLE WHEN THERE IS NOT A GENERAL CONSENSUS IN THE COMMUNITY THAT THERE IS ANY NEED TO CHANGE THESE VALUES. IN TEACHING ABOUT ENERGY CONSERVATION, IT IS IMPERATIVE THAT STUDENTS BE ENCOURAGED TO RE-EXAMINE AND CHANGE THEIR VALUES. FOR INSTANCE, PEOPLE MUST EXAMINE WHETHER OR NOT IT IS NECESSARY TO LIVE IN THE SUBURBS AND DRIVE TO WORK ALONE IN AN ENERGY-INEFFICIENT CAR. IS IT NECESSARY TO LIVE IN A SINGLE HOUSE IN THE SUBURBS? IS IT INDEED A RIGHT FOR A MAN AND A WOMAN TO HAVE AS MANY CHILDREN AS THEY WANT, OR WILL THE KNOWLEDGE OF THE PROBLEMS IN ENERGY BRING ABOUT A LASTING CHANGE IN FAMILY SIZE AS IS SUGGESTED IN THE BOOK MOMENT IN THE SUN? WILL PEOPLE CHANGE THEIR DESIRE FOR AND USE OF ENERGY-WASTEFUL APPLIANCES? AND, WILL PEOPLE CHANGE THEIR HABITS OF GOING AWAY HUNDREDS AND EVEN THOUSANDS OF MILES ON VACATION? CAN WE REALLY TEACH PEOPLE ABOUT THE FUTURE SO THAT THEY WILL EXPERIENCE A VICARIOUS FUTURE SHOCK BEFORE THE ABSOLUTE FUTURE SHOCK OF LOSS OF TRADITIONAL ENERGY SOURCES WHICH MANY EXPERTS ARE PREDICTING?

THE THIRD PROBLEM A PRINCIPAL CONSIDERS IN ATTEMPTING TO BRING ABOUT CHANGE IS THE FACT THAT PEOPLE, BY AND LARGE, EXPECT SCHOOLS TO

BE THE SAME AS THE SCHOOLS THEY ATTENDED. THE CURRENT BACKLASH OF OPINION CONCERNING SUCH THINGS AS ELECTIVES, DRIVER EDUCATION, SEX EDUCATION, AND OTHER PROGRAMS CAUSES PEOPLE IN SMALL, CONSERVATIVE, RURAL AREAS TO PROCLAIM THAT THE SCHOOLS ARE REALLY NOT TEACHING WHAT THEY SHOULD BE TEACHING - THE BASICS OF READING, WRITING, AND ARITHMETIC.

AFTER ALL THIS PESSIMISM, I DO BELIEVE THAT IT IS POSSIBLE TO DEVELOP PROGRAMS IN SCHOOLS WHICH CAN EFFECT CHANGES IN PEOPLE. MY SCHOOL, MAPLE HILL HIGH SCHOOL IN CASTLETON-ON-HUDSON, NEW YORK, HAS A GOOD EXAMPLE OF THAT KIND OF PROGRAM. WITH THE HELP OF A $30,000 GRANT FROM THE FEDERAL GOVERNMENT, MY HIGH SCHOOL PLANNED A COURSE IN ENVIRONMENTAL STUDIES. AS PRINCIPAL OF THE HIGH SCHOOL AT THAT TIME, I WORKED CLOSELY WITH FOUR TEACHERS FROM VARIOUS DISCIPLINES TO HELP DEVELOP THE CONCEPT FOR THE PROGRAM.

THE EMPHASIS OF THE COURSE WAS ON FIELD WORK WHICH TOOK THE STUDENTS OUT OF THE FORMAL CLASSROOM SITUATIONS AND REQUIRED THEM TO ACTUALLY INVOLVE THEMSELVES WITH THEIR ENVIRONMENT. BASIC FIELD EXPERIENCES INCLUDING A SEMI-WILDERNESS CAMPING EXPERIENCE, STUDIES OF THE HUDSON RIVER, DIRECT ENCOUNTERS WITH URBAN BLIGHT AND COMMUNITY ACTION PROJECTS TO ENCOURAGE SUCH PRACTICES AS WASTE RECYCLING, ZONING,

AND SEWERAGE FACILITIES FOR THE TOWN. OTHER PROJECTS INCLUDED AIR POLLUTION STUDIES, SOIL STUDIES, AND SOLID WASTE DISPOSAL STUDIES. THE STUDENTS READ WIDELY IN ECOLOGICAL LITERATURE AND IN POLITICAL ACTION LITERATURE.

WITH THIS PHILOSOPHICAL APPROACH TO THE COURSE AND WITH FEDERAL FUNDING, WE BEGAN THE COURSE IN AUGUST 1972, WITH A WEEK-LONG CAMPING CONFERENCE IN THE ADIRONDACKS NEAR LAKE PLACID, AT WHICH TIME WE HELPED TO SET GOALS WITH THE STUDENTS. ACCOMPLISHMENTS THAT YEAR WHEN THERE WAS OBVIOUSLY A HAWTHORNE EFFECT, AND IN SUCCEEDING YEARS HAVE BROUGHT US TO THE REALIZATION THAT WE CAN EFFECT CHANGE IN PEOPLE'S VALUES BY INVOLVING PEOPLE IN EXPERIENTIAL SITUATIONS AFTER THEY HAVE GAINED A DEGREE OF COGNITIVE UNDERSTANDINGS. WE WERE NOT TOTALLY SUCCESSFUL IN THIS RESPECT, BUT CLEARLY OUR SUCCESS WAS GREATER BECAUSE OF THIS COURSE THAN IT WOULD HAVE BEEN IN THE TYPICAL CLASSROOM.

THE ACCOMPLISHMENTS OF THE CLASS ARE TOO NUMEROUS TO DETAIL. SOME EXAMPLES OF ITS SUCCESS SHOULD BE MENTIONED. THE CLASS HAS SUSTAINED A RECYCLING PROGRAM FOR SIX YEARS. ONCE A MONTH PAPER, GLASS, AND METAL ARE RECYCLED AT THE HIGH SCHOOL. THIS ONGOING COMMUNITY RECYCLING PROGRAM IS THE ONLY ONE IN THE ALBANY, NEW YORK, AREA AT THE PRESENT TIME. THE CLASS CONTINUES TO TEST WATER AND SOIL

SAMPLES FOR LOCAL RESIDENTS AND TO MONITOR THE LOCAL STREAMS AND THE HUDSON RIVER. THE CLASS HAS HELD MEMBERSHIP ON THE CAPITAL DISTRICT TRANSPORTATION STUDY BICYCLE TASK FORCE, THE SCHODACK CONSERVATION ADVISORY COUNCIL, AND SEVERAL OTHER LOCAL ENVIRONMENTAL PLANNING GROUPS. MEMBERS OF THE CLASS TEACH ENVIRONMENTAL STUDIES IN THE DISTRICT'S ELEMENTARY SCHOOLS. THE CLASS HAS WORKED FOR SEVERAL YEARS TO CONSTRUCT A MINI-PARK ON A HILL OVERLOOKING THE HUDSON RIVER, A STUDY-EATING AREA OUTSIDE MAPLE HILL HIGH SCHOOL, AND SEVERAL NATURE TRAILS IN THE WOODED AREAS AROUND TWO OF THE DISTRICT'S SCHOOLS. THE CLASS PUBLISHES A QUARTERLY NEWSPAPER ON ENVIRONMENTAL PROBLEMS WHICH IS MAILED TO ALL COMMUNITY HOMES. THE MEMBERS OF THE CLASS HAVE ALSO PREPARED NUMEROUS SLIDE AND VIDEO-TAPE PROGRAMS ON LOCAL ENVIRONMENTAL PROBLEMS FOR PRESENTATION TO LOCAL GROUPS. LAST YEAR, IN LATE MAY, THE CLASS SPONSORED ITS FIRST ANNUAL LOCAL ENERGY DAY.

THE STUDENTS WHO HAVE TAKEN ENVIRONMENTAL STUDIES AT MAPLE HILL HIGH SCHOOL HAVE GAINED IMMEASURABLY FROM THEIR EXPERIENCES IN THE CLASS. I BELIEVE THAT MOST OF THEM HAVE CHANGED THEIR VALUES AND ATTITUDES CONCERNING THE ENVIRONMENT. WHAT I AM SAYING IS OBVIOUS TO YOU: THESE STUDENTS LEARNED BY DOING INSTEAD OF LEARNING ONLY BY READING, LISTENING, AND SEEING. BUT I ALSO HAVE TO SAY THAT IT IS VERY

DIFFICULT IN A PUBLIC HIGH SCHOOL TO PUT THIS KIND OF PROGRAM INTO EFFECT. THE PROBLEMS THAT WE ENCOUNTERED IN OUR ENVIRONMENTAL STUDIES COURSE WERE, AND ARE, MANY. IT HAS BEEN, AND IS STILL DIFFICULT TO GET THE MAJORITY OF STUDENTS, AND SOMETIMES EVEN TEACHERS, TO ATTEND THOSE EVENING MEETINGS OR TO DO THAT EXTRA BIT OF WORK AFTER SCHOOL, TO MAKE ARRANGEMENTS FOR THAT BUS TO TAKE THE PEOPLE ON A FIELD TRIP, OR TO GET THAT SPEAKER TO COME TO A SMALL SCHOOL MANY MILES FROM HIS PLACE OF OPERATION WHEN THERE IS NO EXPENSE MONEY FOR AN HONORARIUM. TO MAKE A PROGRAM SUCH AS OUR ENVIRONMENTAL STUDIES COURSE SUCCESSFUL OR EFFECTIVE REQUIRES GREAT DEDICATION ON THE PART OF TEACHERS AND A VERY SUPPORTIVE ADMINISTRATION AND HOPEFULLY BOARD OF EDUCATION, AND EXTRA MONEY. THESE THREE ELEMENTS, MONEY, SUPPORTIVE ADMINISTRATION, AND DEDICATED TEACHERS, ARE DIFFICULT TO FIND AND TO KEEP TOGETHER BECAUSE A COURSE LIKE ENVIRONMENTAL STUDIES CAN BECOME CONTROVERSIAL, AND WE ALL KNOW THAT CONTROVERSY SHORTENS THE TENURE OF ADMINISTRATORS, COOLS THE ENTHUSIASM OF SOME TEACHERS, AND DRIES UP THE SOURCE OF MONEY. PROGRAMS SUCH AS OUR COURSE IN ENVIRONMENTAL STUDIES DO HAPPEN AND ARE BEING TAUGHT AND EXPERIENCED THROUGHOUT THE UNITED STATES, BUT THEY ARE VERY FEW AND RARE IN COMPARISON WITH THE MANY SCHOOL DISTRICTS AND HIGH SCHOOLS IN THE UNITED STATES. I BELIEVE, THOUGH, THAT COURSES

SUCH AS THESE ARE THE MOST EFFECTIVE COURSES TO CHANGE THE VALUES AND ATTITUDES OF STUDENTS CONCERNING ENERGY CONSERVATION. I WOULD ENCOURAGE ANY HIGH SCHOOL PRINCIPALS WHO HAVE THE INCLINATION AND THE INTEREST IN THIS AREA TO BEGIN SEARCHING OUT TEACHERS AND COMMUNITY PERSONNEL WHO COULD WORK TOGETHER TO SECURE FEDERAL, STATE, AND LOCAL MONEY TO PUT A COURSE SUCH AS THIS INTO EFFECT IN THEIR HIGH SCHOOLS.

BEING A PRACTICAL-MINDED ADMINISTRATOR, I DO KNOW THAT IMMERSION COURSES SUCH AS OURS IN ENVIRONMENTAL STUDIES MUST BE THE EXCEPTION AND NOT THE RULE. IDEALLY THESE IMMERSION COURSES CAN BRING ABOUT PROFOUND CHANGES IN THE TOTAL VALUE SYSTEM OF THE STUDENTS INVOLVED. BUT PRACTICALLY IT IS IMPOSSIBLE TO INVOLVE ALL STUDENTS IN THESE SPECIAL COURSES. WHAT IS NECESSARY TODAY IS REACHING THE TOTAL STUDENT BODY WITH THE WHY AND THE HOW OF ENERGY CONSERVATION. A MID 1977 SURVEY BY THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS SUPPORTS THIS BELIEF. THIS SURVEY WHICH MEASURES ENERGY RELATED KNOWLEDGE AND ATTIDUES OF YOUNG ADULTS AGED 26-35, HAS GIVEN SOME INTERESTING INFORMATION. EVEN THOUGH 46% OF THESE PEOPLE CLAIMED THAT THEY KNEW THAT PETROLEUM PROVIDES MOST U.S. ENERGY AND 70% KNEW THAT WE ARE LIKELY TO RUN OUT OF PETROLEUM BEFORE COAL, ONLY 14% OF THESE ADULTS KNEW THAT MOST U.S. ELECTRICAL ENERGY IS PRODUCED FROM COAL. THE SURVEY ALSO REVEALED THAT

THE MAJORITY OF THESE ADULTS SAY THAT THEY ARE INFLUENCED BY ENERGY CONSIDERATIONS WHEN THEY VOTE, BUY CARS AND APPLIANCES, TRAVEL TO WORK, AND HEAT THEIR HOMES. THEY ALSO INDICATED, IN THIS SURVEY, THAT THEY WOULD DO MORE TO CONSERVE ENERGY IF THEY HAD MORE INFORMATION ABOUT ENERGY-SAVING METHODS.

ELECTIVE COURSES, WHICH ARE TAKEN ONLY BY A FEW SELECTED STUDENTS IN AN ELEMENTARY SCHOOL OR A HIGH SCHOOL, ARE NOT ENOUGH. THE ONLY APPROACH WHICH CAN BE USED SUCCESSFULLY IN OUR SCHOOLS, AND WE HAVE MOVED TO THIS APPROACH IN OUR SCHOOL SYSTEM, IS WHAT IS COMMONLY CALLED THE INFUSION METHOD. INFUSION UNITS ARE THOSE WHICH ARE REFERENCED TO A SUBJECT MATTER SYLLABUS AND TIED TO THE CONTENT IN THAT SYLLABUS. THE INFUSION UNITS MAY BE USED EITHER TO SUPPLEMENT OR TO SUPPLANT SOME OF THE UNITS NORMALLY USED IN THE INSTRUCTIONAL PROGRAM. IN THIS WAY BOTH THE REGULAR SUBJECT MATTER OBJECTIVES AND ENVIRONMENTAL OBJECTIVES MAY BE SATISFIED. THE NEW YORK STATE EDUCATION DEPARTMENT HAS PUBLISHED A SERIES OF INFUSION UNITS FOR HIGH SCHOOLS IN THE AREAS OF CONSUMER EDUCATION, LANGUAGE ARTS, HEALTH, FINE ARTS, INDUSTRIAL ARTS, MATHEMATICS, SOCIAL STUDIES, ETC. THESE INFUSION UNITS, WHICH OFTEN ENHANCE THE STUDY OF THE BASIC ACADEMIC AREA, PRESENT AN ENVIRONMETAL STUDIES TOPIC WITHIN THE FRAMEWORK OF THE REGULAR CLASSES. AN EXCELLENT EXAMPLE OF THESE

UNITS IS FOUND IN A NEW YORK STATE EDUCATION DEPARTMENT PUBLICATION CALLED LIVING WITHIN OUR MEANS: ENERGY AND SCARCITY. THIS BOOK CONTAINS ENVIRONMENTAL EDUCATION INSTRUCTIONAL ACTIVITIES APPROPRIATE FOR GRADES 7 THROUGH 12. THESE UNITS ARE SPECIFICALLY DESIGNED TO BE USED WITHIN THE REGULAR CLASSROOM IN THE TRADITIONAL ACADEMIC DISCIPLINES.

THERE IS A WEALTH OF MATERIAL WHICH HAS BEEN PUBLISHED CONCERNING ENERGY CONSERVATION. THE SHEER VOLUME OF THE MATERIAL PUBLISHED TENDS TO OVERWHELM EDUCATORS WHEN THEY FIRST APPROACH THIS TOPIC. LET ME HIGHLIGHT AND FOCUS ON JUST A FEW OF THESE SOURCES OF MATERIALS CONCERNING ENERGY CONSERVATION. MATERIALS WHICH I WILL MENTION TODAY ARE ONES WHICH TEACHERS IN OUR HIGH SCHOOL HAVE FOUND PARTICULARLY EFFECTIVE IN THEIR ATTEMPTS TO INFUSE THE SUBJECT OF ENERGY CONSERVATION INTO THE REGULAR CURRICULUM. I HAVE ALSO PREPARED A SHORT BIBLIOGRAPHY WHICH ALSO COVERS THESE MATERIALS.

FOR A SIMPLE, EFFECTIVE OVERALL APPROACH TO THE PROBLEMS OF ENERGY IN THE UNITED STATES, I WOULD LIKE TO REFER TO THE ENERGY BOOK PUBLISHED BY SHELL OIL COMPANY. THIS LITTLE BOOKLET IS SIMILAR TO THE SHELL ANSWER BOOKS AND IS APPROPRIATE FOR USE IN SOCIAL STUDIES, SCIENCE, OR OTHER CLASSES IN GRADES 7-12. THE BOOKLET SURVEYS THE CONSUMPTION AND SUPPLY OF ENERGY AND THE FUTURE POSSIBLE SOURCES OF ENERGY. INCLUDED

WITH THIS ENERGY BOOK IS A LESSON PLAN AND DISCUSSION GUIDE FOR TEACHERS WHO PLAN TO USE THE ENERGY BOOK. THE LESSON PLAN AND DISCUSSION GUIDELINES CONTAIN A WEALTH OF ACTIVITIES AND SUGGESTIONS FOR A TEACHER WHO IS SERIOUSLY INTERESTED IN GOING BEYOND A CURSORY LOOK AT THE ENERGY PROBLEM. I WOULD RECOMMEND THESE MATERIALS TO YOU BECAUSE THEY ARE FREE, SIMPLE TO USE, AND VERY HELPFUL TO A TEACHER.

SECOND, I WOULD LIKE TO REFER YOU TO THE SEPTEMBER 1978 ISSUE OF THE BULLETIN, PUBLISHED BY THE NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS. IN THAT ISSUE ARE EIGHT ARTICLES CONCERNED WITH ENERGY EDUCATION. THESE ARTICLES IN TURN CONTAIN NOT ONLY SUGGESTIONS AND PHILOSOPHICAL POINTS OF VIEW TOWARD TEACHING ABOUT ENERGY CONSERVATION, BUT THEY ALSO INCLUDE REFERENCES TO MATERIALS WHICH THE AUTHORS HAVE FOUND SUCCESSFUL IN CLASSROOM SITUATIONS. THE LEADING ARTICLE IN THAT ISSUE, CALLED "BACK TO BASICS, THE A B C'S OF ENERGY" BY DR. ROBERT E. HORVAT OF THE STATE UNIVERSITY COLLEGE OF BUFFALO, NEW YORK, REFERS TO MATERIALS PUBLISHED BY THE NATIONAL SCIENCE TEACHERS ASSOCIATION. THESE MATERIALS, CALLED INTERDISCIPLINARY STUDENT-TEACHER MATERIALS IN ENERGY, ENVIRONMENT, AND THE ECONOMY, CONTAIN FIELD TESTED UNITS WHICH SHOULD BE USED AS INFUSION UNITS IN THE REGULAR CLASSROOM. THESE MATERIALS ARE FREE AND ARE AVAILABLE FROM THE U.S. DEPARTMENT OF

ENERGY.

OTHER MATERIALS WHICH HAVE BEEN EXTREMELY HELPFUL TO TEACHERS IN OUR SCHOOL ARE ALSO PUBLISHED BY THE NATIONAL SCIENCE TEACHERS ASSOCIATION. ONE IS AN ENERGY ENVIRONMENT MATERIALS GUIDE WHICH CONTAINS SUGGESTIONS OF READINGS FOR STUDENTS IN GRADES K-12. THIS BOOKLET IN ITSELF IS AN EXCELLENT BIBLIOGRAPHY OF READINGS FOR HIGH SCHOOL STUDENTS. ALSO AVAILABLE FROM THE NATIONAL SCIENCE TEACHERS ASSOCIATION IS ANOTHER BOOK, TITLED ENERGY ENVIRONMENT: MINI UNIT GUIDE. THIS BOOK HAS ACTUAL UNITS WHICH CAN BE USED DIRECTLY IN THE CLASSROOM. AGAIN THE CLASSROOM MAY NOT NECESSARILY BE A SCIENCE CLASSROOM. ANOTHER BOOKLET, PUBLISHED BY THE FEDERAL ENERGY ADMINISTRATION, IS CALLED ENERGY CONSERVATION: UNDERSTANDING AND ACTIVITIES FOR YOUNG PEOPLE. THIS BOOKLET GOES INTO MORE DEPTH THAN THE SHELL ENERGY BOOK AND COULD BE USED WITH THOSE GROUPS IN WHICH A MORE COMPREHENSIVE APPROACH IS DESIRED. ANOTHER EXCELLENT SOURCE FOR TEACHERS IS THE BOOK ENERGY ON FILM. THIS BOOK, WHICH IS PUBLISHED BY THE NEW YORK STATE ALLIANCE TO SAVE ENERGY, CONTAIN AN ANNOTATED BIBLIOGRAPHY OF 160 FILMS ON ENERGY. ONE SECTION IS DEVOTED TO ENERGY CONSERVATION.

THERE ARE COUNTLESS OTHER SOURCES WHICH I WOULD LIKE TO CITE TODAY, BUT LET ME JUST MENTION SEVERAL IMPORTANT SOURCES OF INFORMATION WHICH

SHOULD NOT BE IGNORED. GAS AND ELECTRIC COMPANIES AND POWER AUTHORITIES ARE MORE THAN WILLING TO PROVIDE INFORMATION TO SCHOOLS. FOR THE MOST PART THIS INFORMATION IS UNBIASED AND IS PRESENTED IN A CLEAR, LOGICAL FASHION. ANOTHER SOURCE OF GREAT IMPORTANCE IS THE INDIVIDUAL STATE CONSERVATION COMMISSION. THESE COMMISSIONS PUBLISH A GREAT MANY MATERIALS WHICH ARE OF VALUE TO SCHOOLS AND ADULT EDUCATION GROUPS AND TO THE GENERAL PUBLIC. FINALLY, THE LAND GRANT COLLEGES AND OTHER UNIVERSITIES ARE EXCELLENT SOURCES OF INFORMATION AND EVEN OF SPEAKERS CONCERNING THE SUBJECT OF ENERGY CONSERVATION.

THE ROLE OF THE PRINCIPAL IN ENERGY CONSERVATION IS REALLY A VERY IMPORTANT ONE. NOT ONLY SHOULD HE BE CERTAIN THAT SIMPLE STEPS HAVE BEEN TAKEN WITHIN THE SCHOOL BUILDING TO EFFECT ENERGY SAVINGS, BUT THE PRINCIPAL ALSO SHOULD USE HIS INFLUENCE TO MAKE CERTAIN THAT HIS SCHOOL SYSTEM APPLIES FOR AN ENERGY RETROFITTING GRANT UNDER THE NATIONAL ENERGY ACT IF APPROPRIATE. BUT HIS GREATER ROLE IS ONE WHICH WILL USE HIS SPECIAL TALENTS AS AN EDUCATIONAL LEADER. TO MAKE A DIFFERENCE IN OUR SOCIETY, IT IS IMPORTANT FOR THE PRINCIPAL TO TAKE THE LEAD IN ASSURING THAT ENERGY CONSERVATION IS A SUBJECT WHICH IS TAUGHT WITHIN THE SCHOOL. HIS ROLE SHOULD BE ONE OF BEING FAIRLY KNOWLEDGEABLE BUT MAINLY ONE OF ENCOURAGING, PERSUADING, AND SUPPORTING TEACHERS IN THEIR

DESIRE TO TEACH ENERGY CONSERVATION. THE PRINCIPAL MUST FIND THOSE TEACHERS WHO ARE INTERESTED AND HE MUST SUPPORT THEM WITH KNOWLEDGE, MATERIALS, AND TIME TO ENCOURAGE THEM IN THEIR INFUSION OF ENERGY CONSERVATION MATERIALS INTO THEIR CURRICULUM. WHILE IT IS ALWAYS EXCITING TO SET UP A MODEL PROGRAM IN WHICH STUDENTS ARE IMMERSED IN THE SUBJECT, THE WIDEST RANGING BENEFITS WILL COME FROM INFUSION UNITS THROUGHOUT THE SCHOOL SYSTEM. ENERGY EDUCATION BECOMES AN ADDITIONAL RESPONSIBILITY AMONG THE MANY WHICH A HIGH SCHOOL PRINCIPAL FACES IN HIS MOST DIFFICULT TASK. BUT PROMOTING EDUCATION FOR ENERGY CONSERVATION BECOMES MORE IMPORTANT THAN OTHER RESPONSIBILITIES BECAUSE OF ITS OBVIOUS IMPORTANCE IN THE VERY SURVIVAL OF MANKIND.

CONSUMPTION OF FUEL OIL (GALLONS)

1972-73	118,200
1973-74	108,090
1974-75	107,800
1975-76	107,622
1976-77	107,724
1977-78	107,157

TOTAL SQUARE FEET - THREE SCHOOLS AND ONE BUS GARAGE - 153,698 SQ. FT.

OPTIMUM FUEL OIL USE - 1/2 GALLON PER SQUARE FOOT
1977-78 FUEL OIL USE - .697 GALLON PER SQUARE FOOT

BASIC BIBLIOGRAPHY FOR ENERGY CONSERVATION

ENERGY CONSERVATION: UNDERSTANDING AND ACTIVITIES FOR YOUNG PEOPLE, OFFICE OF CONSERVATION EDUCATION, FEDERAL ENERGY ADMINISTRATION, WASHINGTON, D.C. 20461, 1975.

ENERGY EDUCATION ARTICLES, NASSP BULLETIN, 62:419, NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS, RESTON, VIRGINIA, SEPTEMBER, 1978.

ENERGY ON FILM, NEW YORK STATE ALLIANCE TO SAVE ENERGY, INC. 36 WEST 44TH STREET, ROOM 709, NEW YORK, NEW YORK 10036, 1978. ($3.00 PER COPY)

JAMASON, BARRY W. LIVING WITHIN OUR MEANS: ENERGY AND SCARCITY, ENVIRONMENTAL EDUCATION INSTRUCTIONAL ACTIVITIES, 7-12, NEW YORK STATE EDUCATION DEPARTMENT, ALBANY, NEW YORK, 1974.

FOWLER, JOHN, DIRECTOR, INTERDISCIPLINARY STUDENT-TEACHER MATERIALS IN ENERGY, ENVIRONMENT, AND THE ECONOMY, NATIONAL SCIENCE TEACHERS ASSOCIATION, OAK RIDGE, TENNESSEE, U.S. DEPARTMENT OF ENERGY, 1976.

LAMBERT, SHELDON, THE ENERGY BOOK, SHELL OIL COMPANY, HOUSTON, TEXAS, 1978. (APPLEGATE, WARREN AND RICHARD BAMBERGER, "LESSON PLAN AND DISCUSSION GUIDELINES FOR 'THE ENERGY BOOK,'" SHELL OIL COMPANY, HOUSTON, TEXAS, 1978.

MERVINE, KATHRYN E. AND REBECCA E. CAWLEY, ENERGY - ENVIRONMENT MATERIALS GUIDE, NATIONAL SCIENCE TEACHERS ASSOCIATION, 1742 CONNECTICUT AVENUE, N.W., WASHINGTON, D.C.

SMITH, STEPHEN M., EDITOR, ENERGY - ENVIRONMENT MINI-UNIT GUIDE, NATIONAL SCIENCE TEACHERS ASSOCIATION, 1742 CONNECTICUT AVENUE, N.W., WASHINGTON, D.C. 20009, 1975.

SCHODACK CENTRAL SCHOOL DISTRICT
CASTLETON-ON-HUDSON, NEW YORK

NOVEMBER 30, 1978

TO: SCHODACK CENTRAL SCHOOL PERSONNEL

FROM: VINCENT RAZZANO, SUPERINTENDENT OF BUILDINGS & GROUNDS

IN AN EFFORT TO CONSERVE ENERGY, THE FOLLOWING LIST OF SUGGESTIONS HAS BEEN DEVELOPED TO BE USED DURING THIS CURRENT HEATING SEASON.

1. EXCEPT FOR EMERGENCIES, DO NOT OPEN WINDOWS DURING OPERATION OF HEATING SYSTEM.
2. MAKE CERTAIN THAT FURNISHINGS, BOOKS, PAPERS, ETC. DO NOT OBSTRUCT FLOW OF AIR INTO AND FROM HEATING UNITS.
3. DO NOT ALLOW EXTERIOR DOORS TO BE LEFT OPEN DURING THE HEATING SEASON.
4. KEEP CLASSROOM DOORS TO CORRIDORS CLOSED TO PREVENT DRAFTS.
5. USE EXHAUST FANS IN SCIENCE LABS, HOME ECONOMICS ROOM, INDUSTRIAL ARTS SHOP, KITCHEN, ETC. ONLY WHEN NECESSARY.
6. TURN OFF ELECTRIC LIGHTS IN OCCUPIED AREAS WHEN WINDOWS GIVE ADEQUATE NATURAL LIGHT FOR THE TASKS BEING PERFORMED; HOWEVER, WHEN ELECTRIC LIGHTS MUST BE TURNED ON DUE TO INSUFFICIENT NATURAL LIGHTS (AND THE ROOM IS NOT BENEFITING FROM THE "SOLOR HEAT GAIN" OF THE SUN) LOWER AND CLOSE ALL VENETIAN BLINDS.
7. LOWER AND CLOSE ALL VENETIAN BLINDS WHEN LEAVING THE ROOM AT THE END OF EACH DAY.
8. WHEN LEAVING AN EMPTY ROOM, TURN OFF ALL ELECTRIC LIGHTS.

CONSUMPTION OF ELECTRICITY (KWH)

1972-73	674,400
1973-74	647,051
1974-75	618,240
1975-76	572,520
1976-77	580,254
1977-78	616,024